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## HISTORIC AMERICAN ENGINEERING RECORD

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Santa Ana River Hydroelectric System,  
SAR-1 Powerhouse  
San Bernardino National Forest  
Redlands Vicinity  
San Bernardino County  
California

HAER No. CA-130-J

David G. De Vries, photographer

October, 1991

Note: Photographs Nos. CA-130-J-1 through CA-130-J-31 are 8x10 inch enlargements from 4x5 inch negatives.

- CA-130-J-1      SAR-1, SOUTHEAST AND SOUTHWEST ELEVATIONS, WITH SWITCH RACK AT LEFT, AND SANTA ANA WELL #1 AND STONE RETAINING WALLS AT RIGHT. VIEW TO NORTH.
- CA-130-J-2      SOUTHWEST ELEVATION AND TAILRACE CHANNEL. VIEW TO NORTHEAST.
- CA-130-J-3      SOUTHEAST ELEVATION, WITH STABLE BEYOND. VIEW TO NORTHWEST.
- CA-130-J-4      NORTHWEST ELEVATION, LOOKING EAST.
- CA-130-J-5      SOUTHEAST AND NORTHEAST ELEVATIONS, FROM TERRACES NEAR SANTA ANA WELL #1. VIEW TO WEST.
- CA-130-J-6      PARTIAL NORTHEAST ELEVATION, LOOKING SOUTHWEST.
- CA-130-J-7      SOUTHEAST PENSTOCK ENTERING RECEIVER ON NORTHEAST SIDE OF SAR-1, ALSO SHOWING TURBINE SHUT OFF VALVES AND ISOLATION VALVE. VIEW TO WEST.

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- CA-130-J-8 NORTHWEST PENSTOCK ENTERING RECEIVER (UNDER PLANKS),  
NORTHEAST SIDE OF SAR-1. VIEW TO SOUTHEAST.
- CA-130-J-9 PENSTOCK RECEIVER AND ISOLATION VALVE, WITH #4  
GENERATOR TURBINE SHUTOFF VALVE IN FOREGROUND. VIEW  
TO SOUTHEAST.
- CA-130-J-10 TAILRACES AND SWITCH RACK, LOOKING NORTHWEST.
- CA-130-J-11 SAR-1, INTERIOR OVERVIEW TO WEST-NORTHWEST.
- CA-130-J-12 HISTORIC CONTROL PANEL, ALSO SHOWING CRANE TRACK.  
VIEW TO SOUTH.
- CA-130-J-13 CRANE AND OVERALL INTERIOR, LOOKING NORTHWEST.
- CA-130-J-14 SLIDING WALL PANEL DOOR, NORTHWEST WALL.
- CA-130-J-15 INTERIOR OVERVIEW TO SOUTHEAST. ACTIVE CONTROL PANEL  
AND GENERATORS AT LEFT, HISTORIC CONTROL PANEL AT  
RIGHT.
- CA-130-J-16 CRANE AND INTERIOR SOUTHEAST WALL.
- CA-130-J-17 OPERATOR'S OFFICE AND BATTERY BANK. VIEW TO WEST.
- CA-130-J-18 ACTIVE 2.4 KV CONTROL PANEL. VIEW TO NORTH.
- CA-130-J-19 WATER DRIVEN EXCITER CONTROL PANEL. VIEW TO  
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- CA-130-J-20 750 VOLT GENERATOR DISCONNECT PANEL. VIEW TO  
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- CA-130-J-21 SOUTHEAST END OF HISTORIC CONTROL PANEL: NO. 1 AND NO. 2 DISCONNECTS. VIEW TO SOUTHWEST.
- CA-130-J-22 REAR OF 750 VOLT HISTORIC CONTROL PANEL. VIEW TO EAST.
- CA-130-J-23 RHEOSTATS BEHIND HISTORIC CONTROL PANEL. VIEW TO SOUTH.
- CA-130-J-24 HISTORIC AIR-COOLED TRANSFORMERS. VIEW TO WEST.
- CA-130-J-25 GENERATOR #2. VIEW TO NORTH.
- CA-130-J-26 DETAIL GENERATOR #3 WATERWHEEL YOKE. VIEW TO NORTHEAST.
- CA-130-J-27 LOMBARD WATER GOVERNOR ON GENERATOR #3. VIEW TO NORTHWEST.
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- CA-130-J-29 WATER-DRIVEN EXCITER. VIEW TO SOUTH.
- CA-130-J-30 PELTON WATERWHEEL FOR DRIVING EXCITER, SHOWING BUCKETS. VIEW TO WEST-SOUTHWEST.
- CA-130-J-31 SAR-1, CRANE DETAIL. VIEW TO NORTHEAST.

Note: Photographs Nos. CA-130-J-32 through CA-130-J-53 are 8x10 inch enlargements from 4x5 inch copy negatives of photographs curated at Southern California Edison Company (SCE), Rosemead, CA.

- CA-130-J-32 SAR-1, VIEW FROM STABLE LOFT. SCE negative no. 10319, November 1, 1923. Photograph by G. Haven Bishop.

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- CA-130-J-33 SAR-1, LOOKING DOWN CANYON OVER TAILRACE CONSTRUCTION. EEC print no. G-C-01-00269, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-34 TAILRACES, LOOKING EAST. EEC print no. G-C-01-00035, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-35 SAR-1 UNDER CONSTRUCTION, SHOWING TAILRACE AREA AND SCAFFOLDING. EEC print no. N-C-01-00028, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-36 SAR-1 UNDER CONSTRUCTION, WITH WORKERS ATOP CRANE. EEC print no. N-C-01-00031, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-37 INTERIOR, SHOWING BALCONY ABOVE CONTROL PANEL, AND BELT-DRIVEN LATHE. EEC print no. G-C-01-00095, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-38 OVERALL INTERIOR, LOOKING EAST. SCE negative no. 2677, June 4, 1914. Photograph by G. Haven Bishop.
- CA-130-J-39 INTERIOR, WITH WORKERS SEATED IN FRONT OF CONTROL PANEL. EEC print no. G-C-01-00191, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-40 GENERATORS AND SWITCHBOARD. SCE negative no. 10320, November 1, 1923. Photograph by G. Haven Bishop.
- CA-130-J-41 EARLY VIEW OF SWITCHBOARD SHOWING BLANK PANELS AT NORTHWEST END. SCE negative no. 1199, June 6, 1912. Photograph by G. Haven Bishop.
- CA-130-J-42 NEW SWITCHBOARD, LOOKING SOUTH FROM SYNCHROSCOPE. SCE negative no. 2678, June 4, 1914. Photograph by G. Haven Bishop.

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- CA-130-J-43 SAR-1 SWITCHBOARD. SCE negative no. 10322, November 1, 1923. Photograph by G. Haven Bishop.
- CA-130-J-44 EXCITERS. SCE negative no. 10325, November 1, 1923. Photograph by G. Haven Bishop.
- CA-130-J-45 TRANSFORMERS. SCE negative no. 10323, November 1, 1923. Photograph by G. Haven Bishop.
- CA-130-J-46 SAR-1, INTERIOR TRANSFORMER BANK. EEC print no. S-C-01-00541, no date. Photographer unknown.
- CA-130-J-47 INTERIOR UNDER CONSTRUCTION, SHOWING EXCITERS AND BASES FOR GENERATOR UNITS. EEC print no. N-C-01-00033, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-48 SAR-1, PELTON WHEELS DURING INSTALLATION. EEC print no. S-C-01-00524, no date. Photographer unknown.
- CA-130-J-49 DOBLE BUCKETS ON PELTON WHEEL. EEC print no. G-C-01-00148, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-50 BELT-DRIVEN LATHE AND WORK BENCH, SHOWING TOOL STORAGE BOARD BEHIND. EEC print no. N-C-01-00043, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-51 SAR-1, GENERATOR #1. SCE negative no. 2869, no date. Photograph by G. Haven Bishop.
- CA-130-J-52 SAR-1, OPERATOR WORKING GOVERNOR. EEC print no. G-C-01-00390, no date. Photograph by Benjamin F. Pearson.
- CA-130-J-53 OPERATOR WORKING GOVERNOR ON UNIT NO. 4. SCE negative no. 2685, no date. Photograph by G. Haven Bishop.

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Note: Photographs Nos. CA-130-J-54 through CA-130-J-61 are 8x10 inch contact prints from copy negatives of recent blue line prints from original engineering drawings curated at Southern California Edison Company (SCE), Rosemead, CA.

- CA-130-J-54     PLAN OF POWERHOUSE, PROJECT 1933, EXHIBIT F, SANTA ANA POWERHOUSE NO. 1. SCE drawing no. 5206855 (no date; FERC no. 1933-45).
- CA-130-J-55     CROSS SECTION OF POWER HOUSE, EXHIBIT L, SANTA ANA RIVER NO. 1 PROJECT, APR. 30, 1945. SCE drawing no. 523199 (sheet no. 9, for filing with Federal Power Commission).
- CA-130-J-56     CROSS SECTION OF POWERHOUSE, PROJECT 1933, EXHIBIT F, SANTA ANA POWERHOUSE NO. 1. SCE drawing no. 5206856 (no date; FERC no. 1933-46).
- CA-130-J-57     ELECTRICAL EQUIPMENT PLOT PLAN, SANTA ANA NO. 1 HYDRO PLANT, OCTOBER 10, 1958. SCE drawing no. 428615-0.
- CA-130-J-58     TAIL RACE AT SANTA ANA NO. 1 POWER STATION, DEC. 5, 1910. SCE drawing no. 5282.
- CA-130-J-59     82 INCH PELTON NOZZLE ON G.E. GEN. BASE, SANTA ANA RIVER NO. 1, JUNE 19, 1909. SCE drawing no. 5309.
- CA-130-J-60     NEEDLE AND NOZZLE TIP, SANTA ANA NO. 1, SOUTHERN CALIFORNIA EDISON CO., APR. 28, 1910, REVISED MAY 12, 1910. SCE drawing no. 4500.
- CA-130-J-61     THREE LINE WIRING DIAGRAM, 33 KV & NO. 1 TRANS BANK, SANTA ANA NO. 1 HYDRO PLANT, OCTOBER 27, 1958. SCE drawing no. 428058-1.